DEPARTMENT OF HOUSING AND COMMUNITY DEVELOPMENT

STATE OF MASSACHUSETTS

MASSACHUSETTS DOWNTOWN INITIATIVE

Parking Technical Assistance To the Town of Needham

Final Report

Performed by:

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November 2009

This work was performed on behalf of the Town of Needham under a Massachusetts Downtown Initiative (MDI) technical grant from the State of Massachusett's Department of Housing and Community Development. The primary mission of the MDI is to make downtown revitalization an integral part of community development in cities and towns across the Commonwealth of Massachusetts. This grant afforded the Town of Needham the opportunity to evaluate revitalization strategies associated with parking in its downtown. For more information about this study or the MDI, please contact the MDI program manager, Elizabeth Hahn, at 617-573-1364 or at Elizabeth.Hahn@state.ma.us. The study and the content of this report were prepared by Nelson\Nygaard Consulting Associates under contract to the MDI. The technical project manager was Jason Schrieber, who can be reached at 617-521-9403 or jschrieber@nelsonnygaard.com.

1. Purpose

For several years, the Town of Needham has sought to resolve parking management problems in Needham Center. Consistently plagued by a lack of available parking in many highly-desired areas, the Town recognized that many rear-yard surface lots were often not well-utilized. However, these lots were mostly under the control of private property owners with varying expectations for how the public might use those spaces. Most landowners have resorted to a variety of use restrictions in order to preserve availability, including designated spaces, time-limits, "customer only" signing, and towing.

In 2002, the Town negotiated a land swap arrangement to increase the size and utilization of the Chestnut Street municipal lot. As part of that lot's reconstruction and expansion, a number of private rear-yard lots were combined, and employee permits were sold back to the various landowners and other nearby businesses. This lot grew to over 180 spaces with tandem parking and has largely been a success for employees, but customer availability continues to be a problem in the downtown.

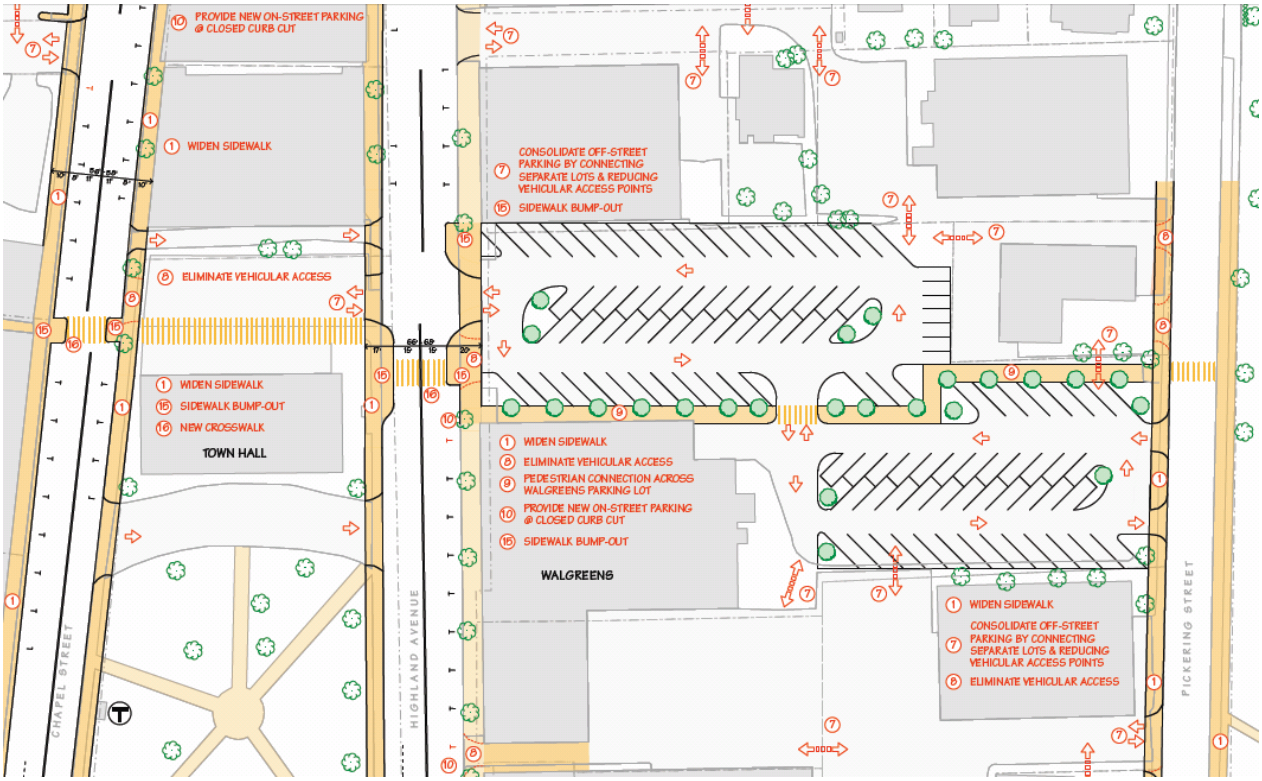
Recognizing the potential to find additional off-street resources for employees and longer-term parkers, the Town identified the Walgreens lot as another potential parking resource in the downtown that could be better utilized. While the lot, which contains over 110 spaces (see Figure 1), is entirely in private hands, it functions largely as a public lot, with most spaces signed for customer parking. As part of the Needham Downtown Study, this lot was re-envisioned as an improved resource for the downtown (see Figure 2). However, the Town lacked a strategy for working with Walgreen's or the underlying property owner to improve this lot to mutual benefit.

Meanwhile, the Town administration itself was facing similar issues to Needham merchants and landowners. Town Hall is located on a small parcel with a limited off-street parking supply. For years, this building could not serve its employee parking demand on-site, much less visitors. Faced with an overdue need for renovation and expansion, the lone Town lot was envisioned to be the site of the Town Hall Annex and new open space, displacing the employee parking lot and further motivating a solution for all of downtown.

Town Hall parking lot

Figure 1: Aerial View of Walgreen's Lot

Figure 2: Needham Downtown Plan, Vicinity of Walgreens Lot

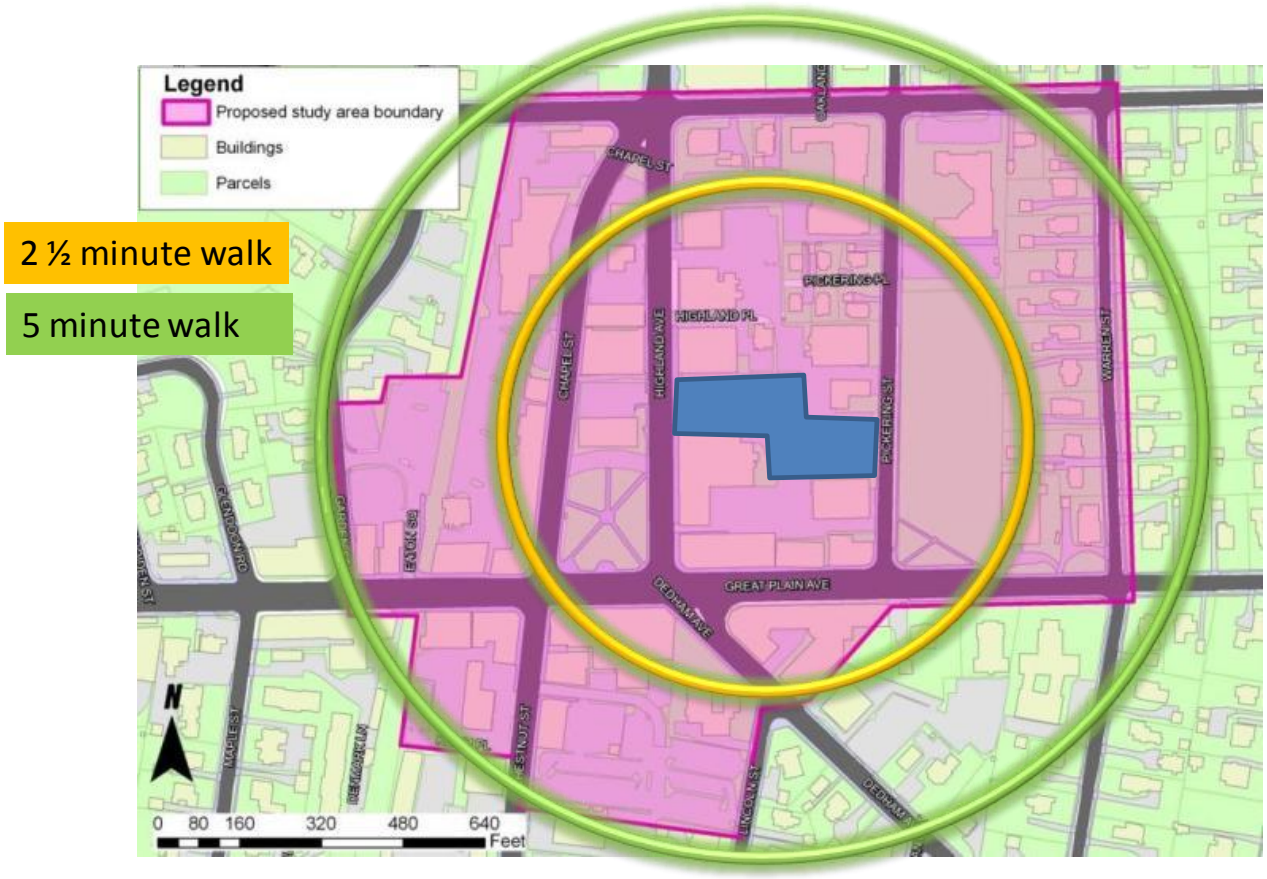


2. Scope of Work

The Town sought MDI's assistance with developing a comprehensive strategy that would address parking availability problems in the downtown through a variety of strategies, including possible incentives to better utilize the Walgreens and other rear-yard lots. MDI's consultant worked with the Town to develop a scope of work (see Appendix A) that focused on the needed analysis to create a "pilot" program of operational strategies and policies for the Walgreens parking lot.

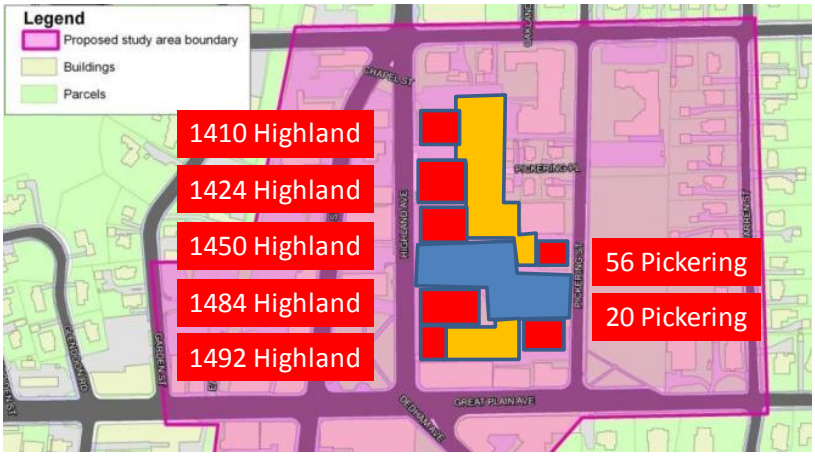
As part of the scope of work, the consultant identified a study area which included all parking spaces within a "reasonable" walk of the Walgreen's lot (see Figure 3). Within this zone, the consultant conducted a weekday and weekend parking utilization study, documenting the complete supply and number of utilized parking spaces throughout the day. These results are reported in Section 4.

Figure 3: Study Area and Walk Radii From Walgreens Lot



The Town identified a set of key stakeholders who would likely have an interest in the improved operation of the Walgreens lot and surrounding parking resources, including all of the property owners directly and indirectly abutting the Walgreens lot, Town staff, and members of Town boards who had a history of dealing with parking issues in Needham. The primary audience of the pilot management program would be the abutting landowners, whose properties are shown in Figure 4. The consultant interviewed each of these property owners and tailored the draft pilot program to each, as summarized in Section 6.

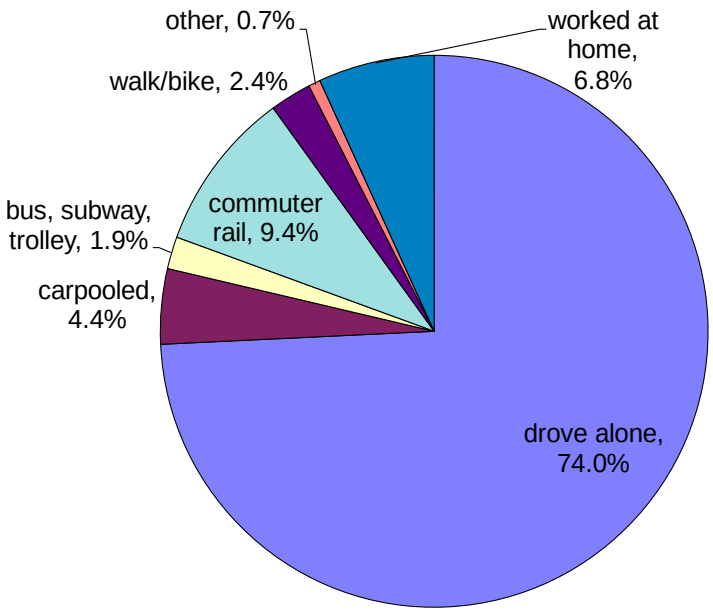
Figure 4: Walgreens Lot and Abutters



3. Background

To understand the demand for parking in Needham Center, a review of transportation access to the downtown was conducted. Data from the most recent census (see Figure 5) reveals that a large majority (74%) of Needham's commuters travel to work by driving alone. The next most important categories by size are those who use commuter rail (9.5%), carpool (4.4%), walk/bike (2.4%) or use the bus, trolley or subway (1.9%). Seven percent of employed persons worked from home.

Figure 5: Journey to Work Mode Shares, 2000 US Census



Transit Service

Bus service in Needham is provided by the MBTA's route 59 that connects Needham Junction Commuter Rail Station to Watertown Square. This bus connects with Green Line Service on the

Riverside Line at Eliot St and Newtown Highlands. Inbound, service runs every half hour during the AM peak from 6:20 to 9:15 AM and in the afternoons from 2:15 till 7:40, when service ends. Between these periods, the time between busses can stretch to 50 minutes. Departing from Watertown Square, service runs every half hour or less from 6:15 AM to 10:35 AM and from 1:30PM to 6:55PM, when service ends. In between, the time between busses can stretch to 50 minutes.

Commuter Rail Service is provided at the Central Needham Station, located approximately 400 feet from the Walgreens lot. This train provides service to South Station inbound every 30 to 40 minutes from 6:14 to 8:34 AM, with less frequent service through the rest of the day. The last inbound train from Needham center departs at 10:10PM. In the outbound direction, PM peak service departs from South Station every 30 to 40 minutes from 4:00 PM to 6:40 PM. The last outbound train departs from South Station at 10:30 PM.

Parking Operations

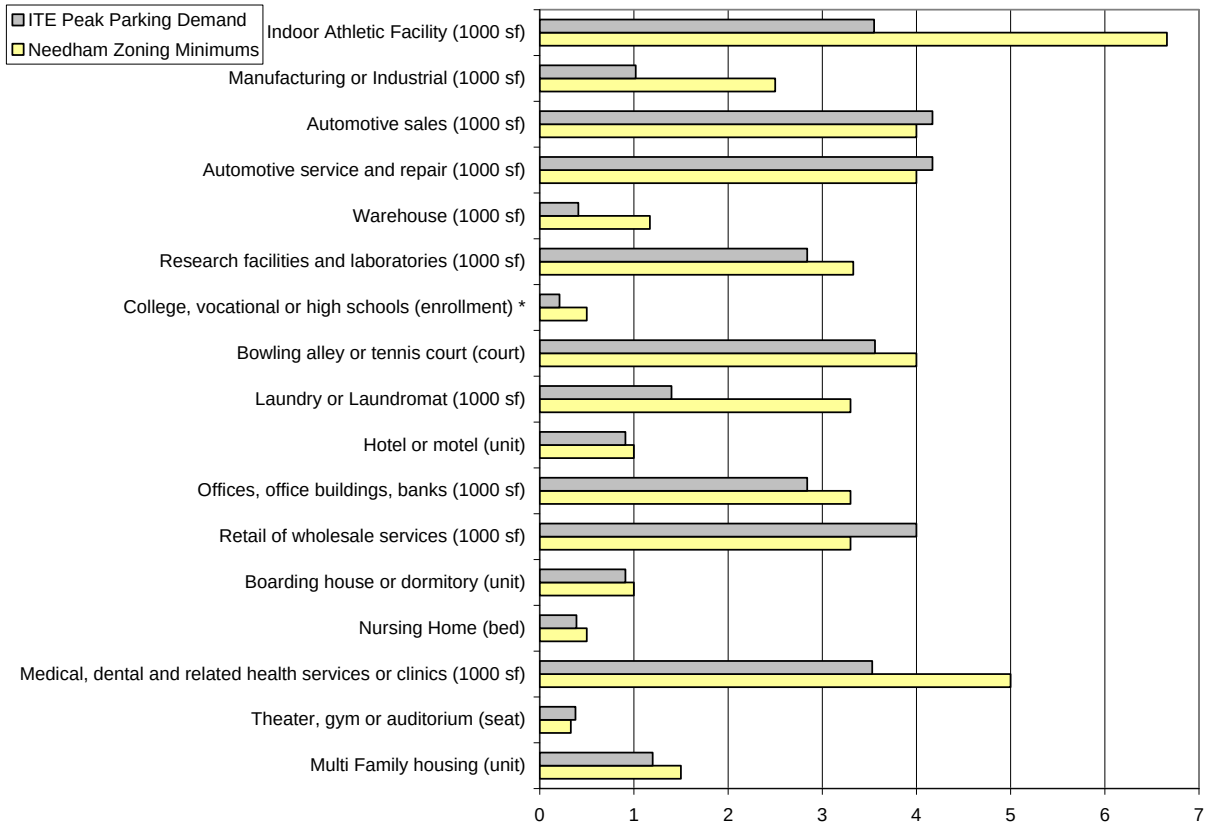
Where metered, exiting on-street parking currently costs $0.25/hour up to a two hour maximum. Parking violations are fined $10 per infraction. Off-street municipal lots allow for 2 and 3-hr parking, which is also subject to a $10 fine for violations.

The Town issues parking permits for employees to use in four downtown parking lots, which cost $75/year. The four downtown lots that allow for permits are Chestnut Street, Eaton Square, Chapel Street and Lincoln Street. The Town also sells “buddy” spaces for Lincoln St., which consist of two tandem spaces that employees can use at any time. These cost $200/year. Businesses within the downtown area purchase permits based on the number of employees they have minus any private spaces they may have. In 2008, 411 downtown permits were issued. All 31 buddy spaces were sold. The Town issues more permits than they have available parking spaces in lots, of which there are approximately 200. There are also some businesses and construction companies that rent spaces in the Needham Heights MBTA Parking lot.

Off-Street Parking Regulations

In order to understand the context for parking provision and operations in Needham, a review of off street parking requirements in the most recent zoning bylaw was conducted. Based on this review, it appears that in most cases Needham’s general parking requirements are higher than the peak parking demand rates found in *Parking Generation 3rd Edition* (Institute of Transportation Engineers, 2004), as illustrated in Figure 6. The peak parking demand rates found in the ITE guide are primarily derived from studies conducted in pure auto-dependent suburban sprawl settings. The ITE warns that these rates are generally very conservative, and when applied as minimum requirements in a more dense setting such as Needham Center they are likely to reproduce a similar auto-dependent suburban setting.

Figure 6: Comparison of Needham Zoning to ITE Parking Rates

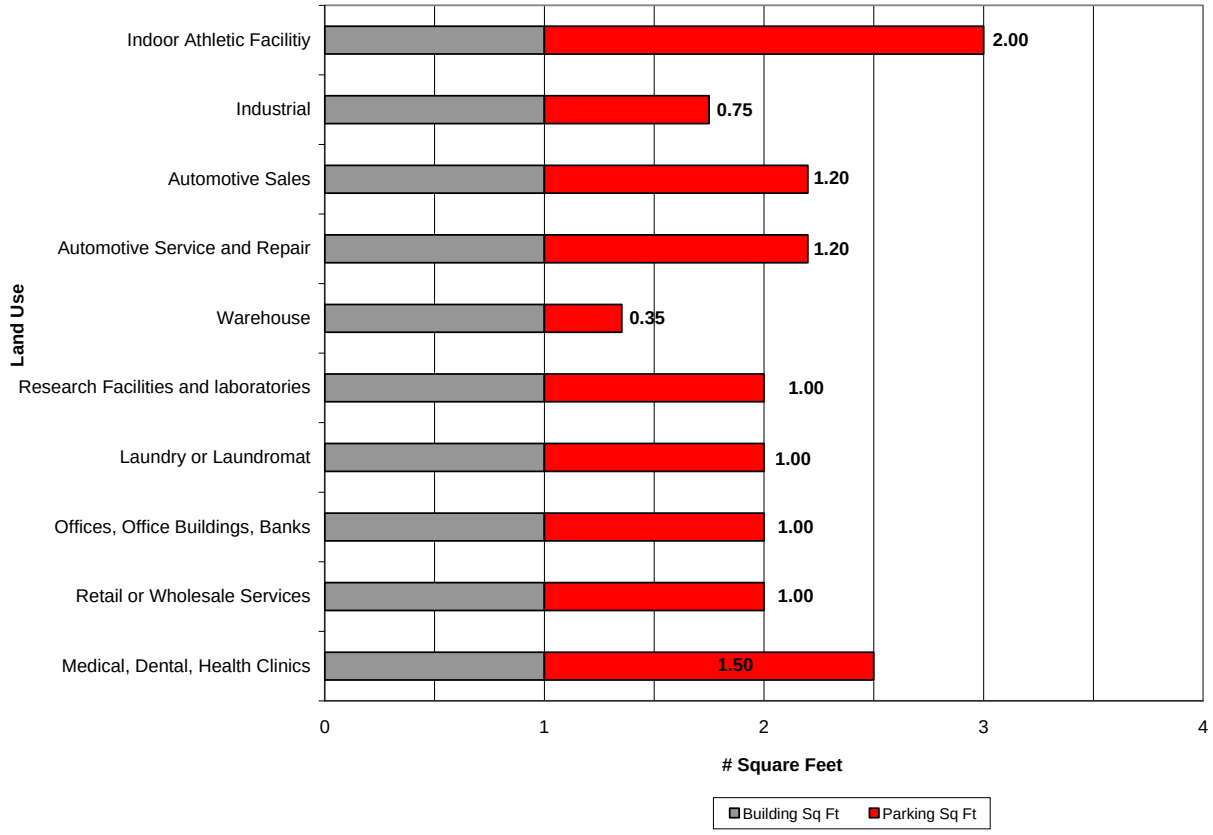


For 14 out of 18 uses, the minimum parking requirements in the Needham zoning code exceed the peak parking demand in the ITE guide.[1] Even where ITE rates are greater than the Needham zoning code, the numbers are generally nearly identical.

Figure 7 presents an analysis of a sample of land uses presented in the Needham zoning code. For each land use, the total square footage of building area is compared to the corresponding amount of required parking. For almost all land uses, the area required for parking is at least as great as the building area. In some cases, the parking square footage occupies twice the area of the primary land use.

[1] Uses where a direct comparison was not possible are excluded from this analysis. Two uses – hospitals and restaurants, fall into this category because parking rates are based on incompatible units.

Figure 7: Ratio of Building Area to Parking Area, Needham Zoning Bylaw

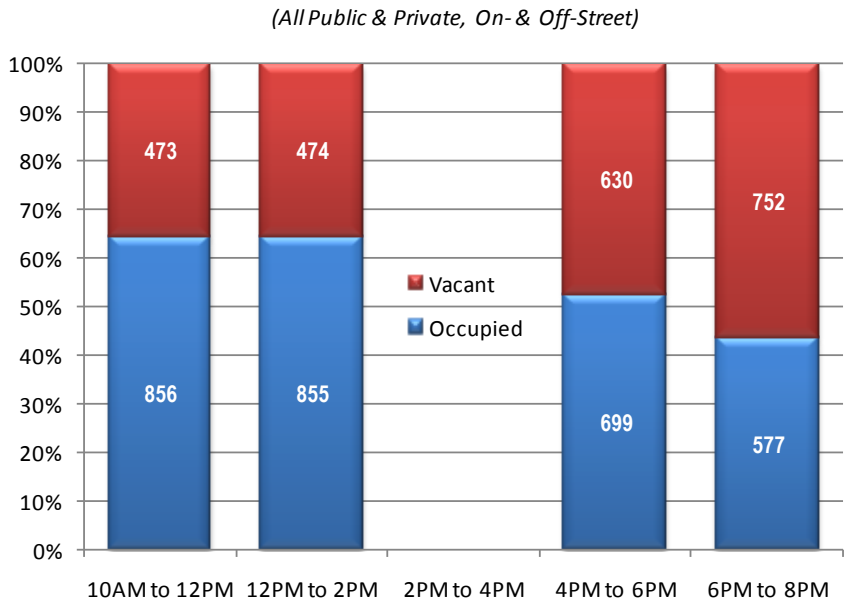


4. Parking Utilization

The consulting team conducted detailed utilization counts of over 1,300 public and private parking spaces within the study area depicted in Figure 3. A map depicting the base inventory and each data collection zone is included in Appendix B. Counts were conducted in 2-hour intervals on two Thursdays in March of 2009 during the periods of 10AM-12PM, 12PM-2PM, 4PM-6PM, and 6PM-8PM. The results are displayed and discussed below.

If taken in aggregate, the maximum utilization of all public and private spaces within the study area was 64-percent. In other words, while some areas may be fully-utilized, within a short walk there are nearly 500 spaces that are not utilized at the period of highest daily demand. This period of highest demand occurs in the late morning and around lunchtime. As the day progresses, availability increases, and more than half of the parking supply is vacant by 8PM (see Figure 8).

Figure 8: Utilization of All Downtown Spaces

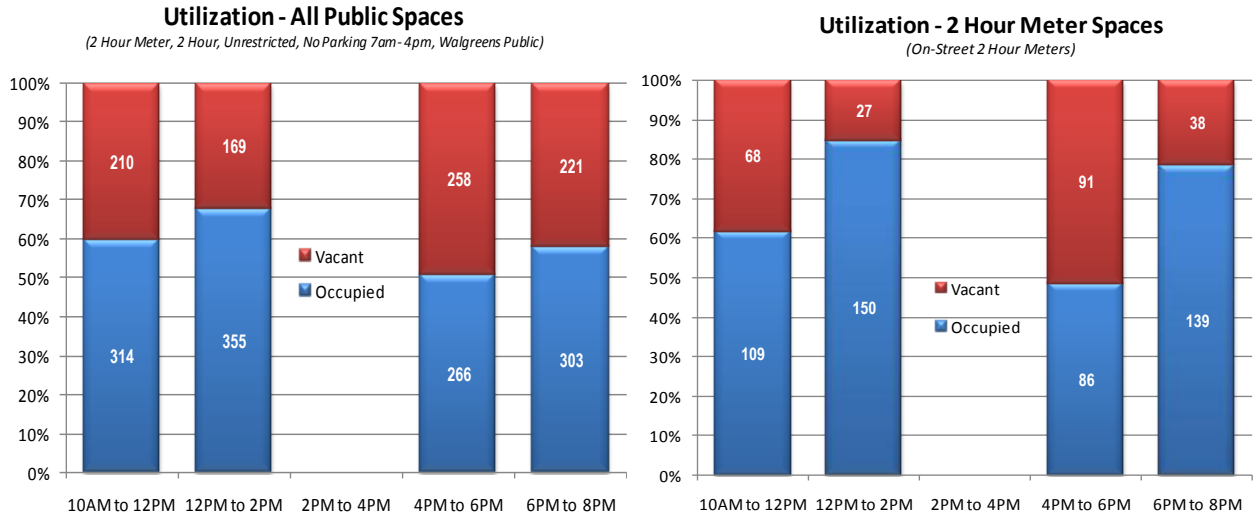


To better understand how different user groups utilized the downtown parking system, this data was broken out by spaces available to customers and the general public versus those available exclusively to employees.

Customer Parking

As shown in Figure 9, there are a number of public spaces available to visitors throughout the business day. Overall utilization does not exceed 67-percent. As a general industry standard, ideal curbside utilization is considered to be 85-percent. Only around the lunch hour is this utilization rate reached in Needham Center, though spaces closest to Town Hall are nearly full.

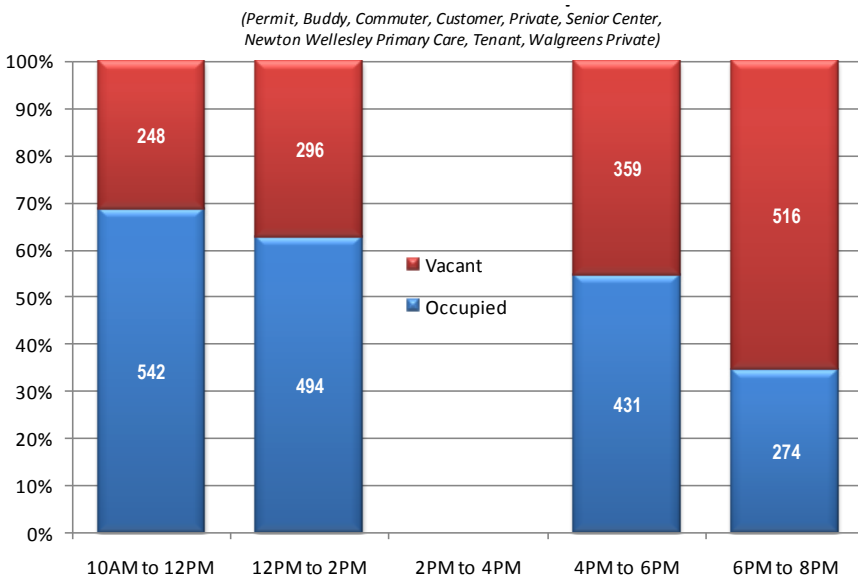
Figure 9: Utilization of Public Spaces



Employee Parking

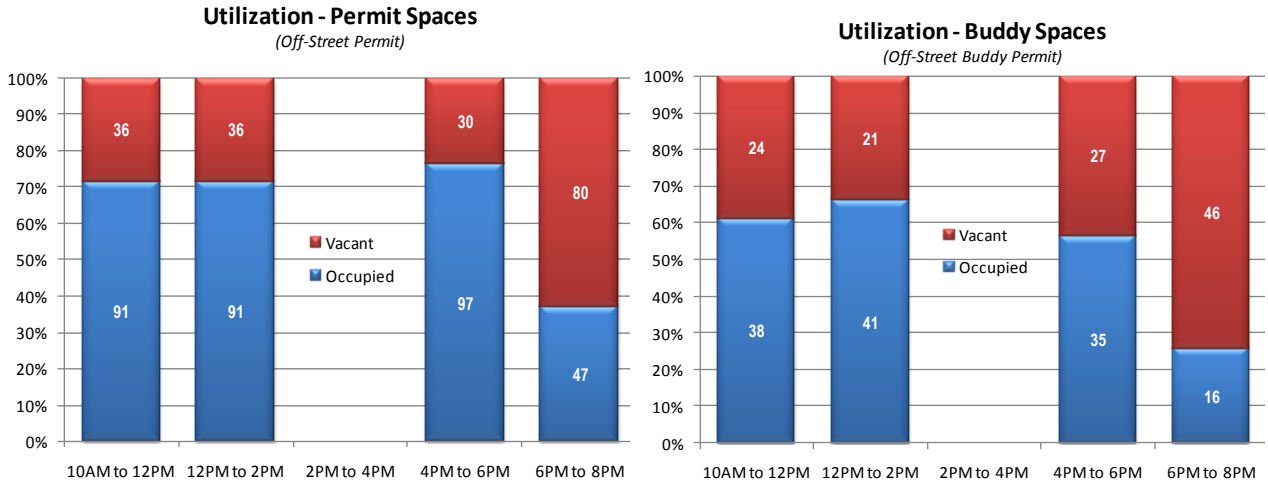
Employees in Needham Center generally park in their employer's lot or in municipal lots with a municipal employee permit. As shown in Figure 10, peak utilization of employees' spaces does not exceed 70-percent, while ideal utilization of an off-street lot is considered to be 90-percent.

Figure 10: Utilization of Employee Parking



The Town's municipal employee permit program sees good utilization over 70-percent most of the workday in Needham Center, but its buddy spaces only exceed 60-percent utilization near lunchtime (see Figure 11).

Figure 11: Utilization of Town Permit Spaces



Spatial Analysis of Downtown Parking

Using geographic information system (GIS) data supplied by the Town, the consulting team mapped all of the utilization data according to the data collection units in Appendix B. Each unit

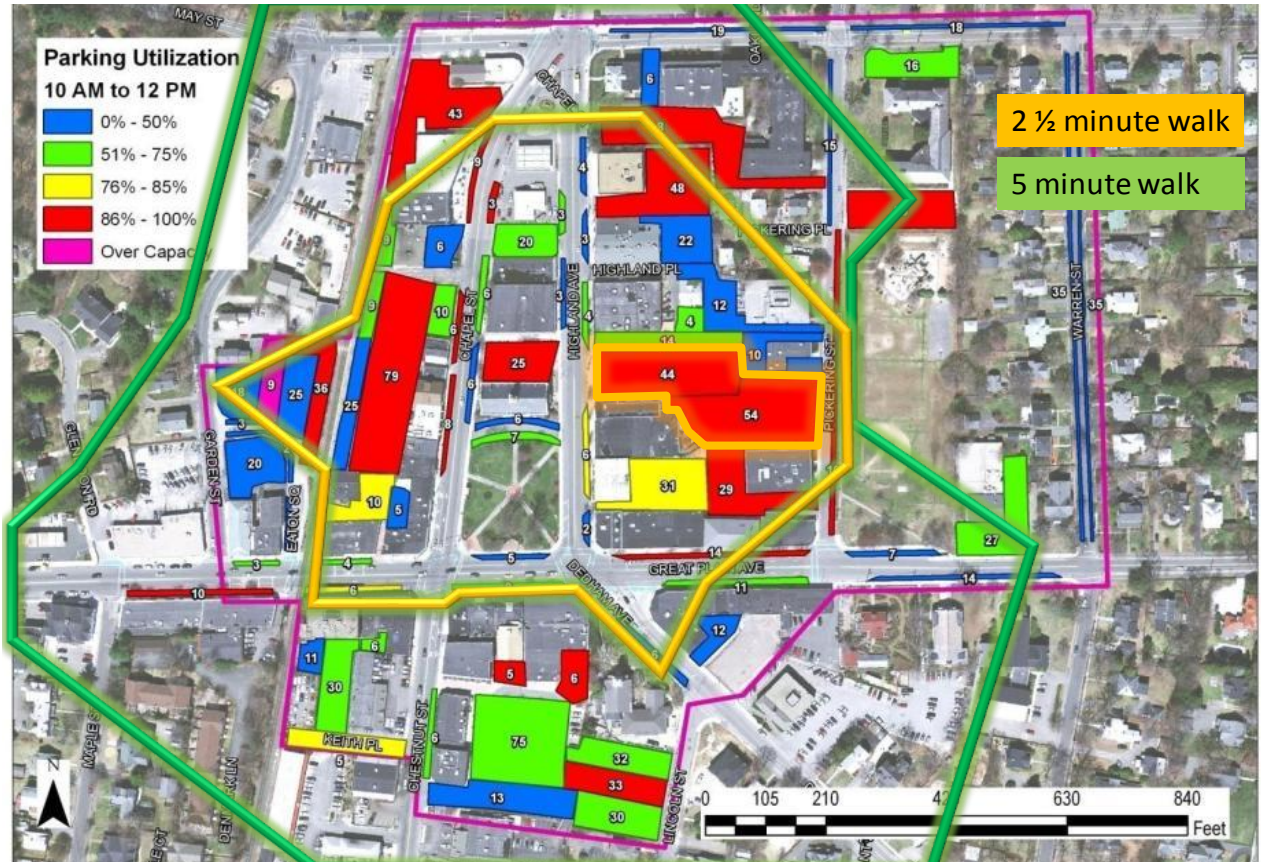
depicts a surface lot or stretch of on-street parking. In the following maps, off-street units are distinguished by visually distinct parking lots as well as where regulations may change within a parking lot. On-street units are distinguished wherever a blockface is interrupted or the parking regulation changes.

Morning Parking, 10AM-12PM

Figure 12 depicts the utilization of parking in Needham Center during the peak of morning accumulation. As shown in the legend, units of parking that are over 85-percent utilized are drawn in red. Moderate utilization of 75-85 percent are yellow. Lower utilization of 51-75 percent is green, with poorly utilized units under 50-percent shown in blue. The Walgreens lot is highlighted in orange. This figure also shows the approximate 2.5 and 5 minute true walking distances from the entrance of the Walgreens lot for a pedestrian traversing existing sidewalks and crosswalks at an average walking speed of 4-feet per second. This helps illustrate how much of the study area is within a short walk of the pilot Walgreens site and is more refined than drawing radii.

The map shows many parking facilities fully utilized in Needham Center. However, directly adjacent to many are very underutilized facilities. This is true of rear-yard lots, fields within a single lot, and on-street spaces. As a rule, within a very short walk of congested locations are dozens of empty spaces – a fact correctly noted by the Town in seeking the Walgreens pilot.

Figure 12: Morning Parking Utilization Map

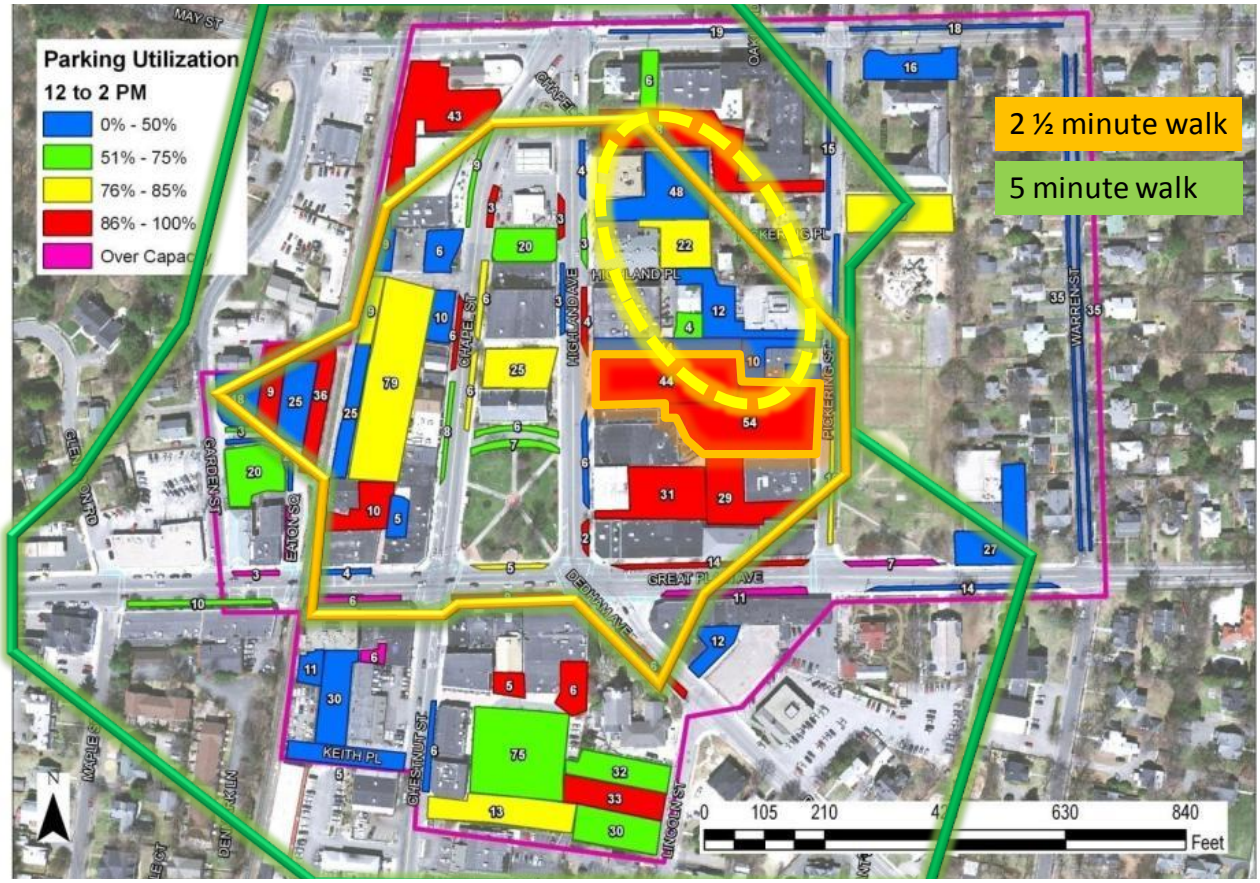


Lunchtime Parking, 12PM-2PM

During lunchtime hours, parking utilization is at its peak. As shown in Figure 13, parking utilization continues to have areas with low utilization adjacent to areas with high utilization. While the absolute number of parking spaces utilized is higher than in the morning, the number of parking facilities at their peak has declined. This is mostly true of short-term parking on-street and in municipal lots, suggesting that morning visitors to Needham Center depart around lunchtime.

At this time of day, parking utilization at many employee lots remains high, but there are notable exceptions. The dashed yellow elipse indicates the rear-yard parking of several of the Walgreens abutter lots within the "Walgreens block." There are at least 40 empty spaces in this area that cannot be accessed by users of the Walgreens lot. Meanwhile, the Town's Chestnut Street lot remains under 75-percent utilized at this time of day

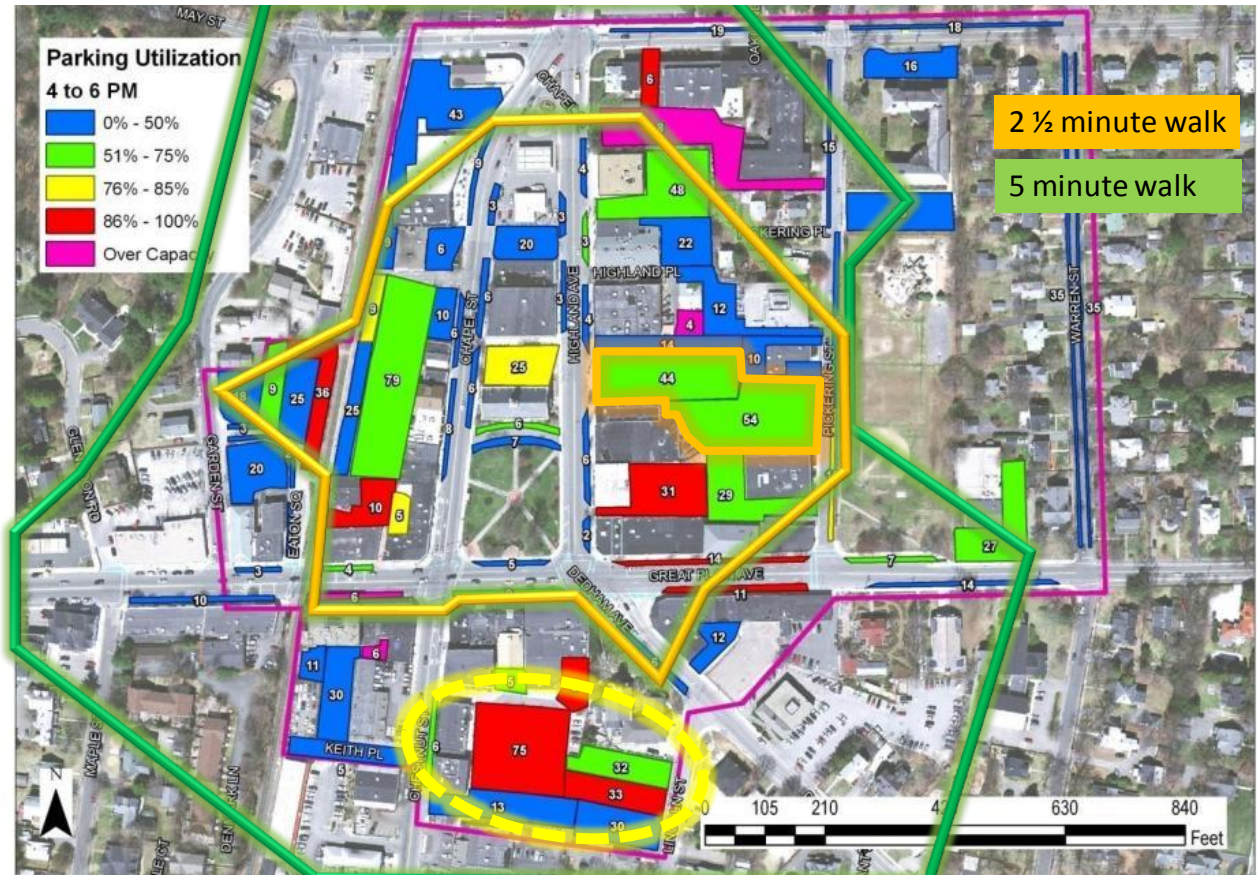
Figure 13: Lunchtime Parking Utilization Map



Late Afternoon Parking, 4PM-6PM

As evening rush hour traffic picks up in Needham, parking utilization begins to drop significantly. During this period of the day, it is not difficult to find parking in Needham Center, with the exception of a couple block faces on Great Plains Ave. and within the Chestnut Street lot (see Figure 14). As indicated by the dashed yellow elipse, this municipal lot is seeing increased activity as restaurant employees arrive for dining hours. The Walgreens lot is beginning to free up, with at least 25-percent vacancy.

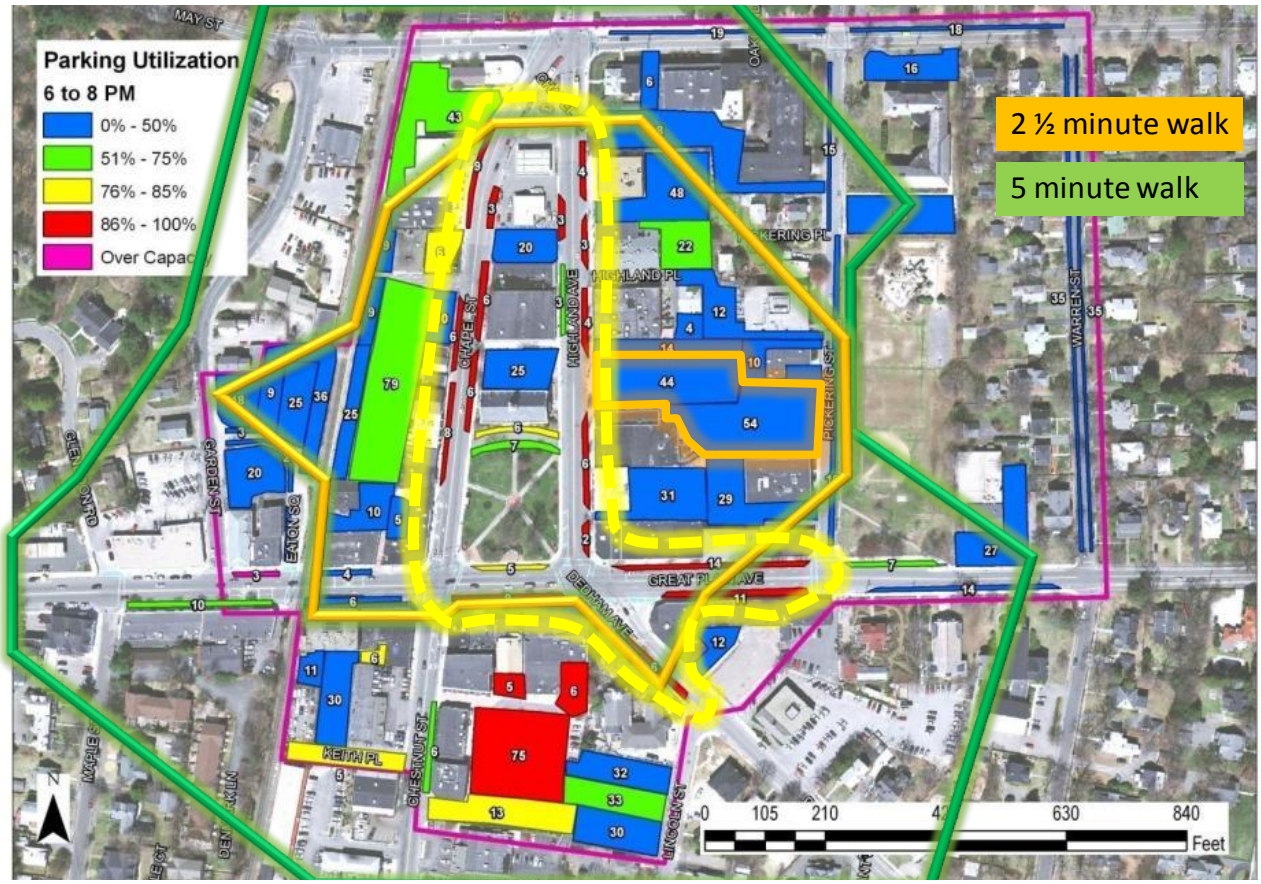
Figure 14: Late Afternoon Parking Utilization Map



Evening Parking, 6PM-8PM

Parking utilization in Needham Center is very low during the evening. Hundreds of spaces remain vacant through the prime dining hours. However, as indicated by the dashed yellow line in Figure 15, nearly every on-street space in the core of downtown is filled. While there are likely a certain number of restaurant patrons taking these spaces, these are more likely to be occupied by restaurant employees taking free parking when the downtown meters shut off at 6PM. This helps give a perception that parking is hard to find in Needham when it is clearly in abundance.

Figure 15: Evening Parking Utilization Map



Utilization Summary

There are several key observations that can be made about parking in Needham Center, as summarized below.

- Overall, there are many vacancies throughout the day, but not at the most convenient spaces. With over 35% of the downtown supply vacant at the time of highest demand, there are several prominent lots that are fully utilized. Meanwhile, many nearby lots go underutilized and represent an opportunity to use parking more efficiently.
- The Walgreens lot is over-utilized during peak morning and lunchtime hours, while many abutting private lots are rather underutilized. This indicates a clear opportunity for sharing parking.
- The Chestnut lot has capacity throughout the day, but it is not considered to be a convenient alternative for visitors to Town Hall and surrounding businesses. At night, this lot becomes filled with restaurant employees and patrons.
- Parking meters are generally well-utilized during daylight hours. While they are more heavily used in the morning, they become rather under-utilized in the afternoon. However, as soon as they shut off at 6PM, they become almost completely filled for the remainder of the evening. This data indicates a likely mis-match between time-limits and hours of operation that is a disincentive to restaurant patrons coming downtown to dine.

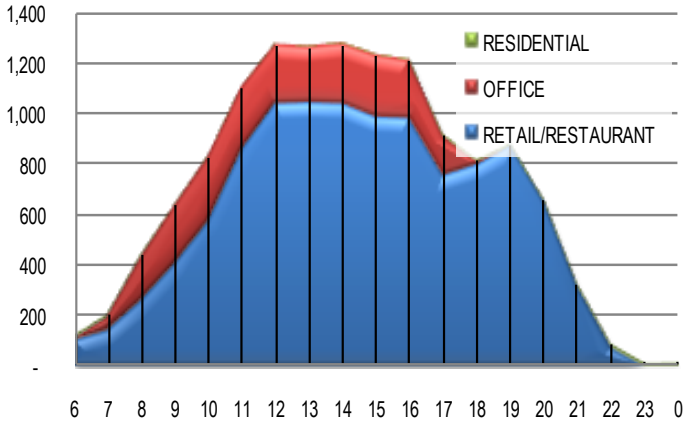
- The lower utilization rate of the Town's buddy passes suggests that this arrangement may need modification or termination. As currently structured, at $200 per year, employees are paying $0.40 per day on average to park. A standard $75 employee permit is 25-percent cheaper at $0.30 per day. While these permits are oversold, they represent a much better value without the hassle of tandem arrangements.
- Following the recent increase in the MBTA lot daily rate from $2 to $4, utilization of this field of parking was lower than the remainder of the Chapel Street lot, where permits can be bought with a daily price of only $0.30. Meanwhile, on-street meter rates for an entire work day are only $2 (though time-limits discourage parking that long.)

5. Parking Demand Projections

At the request of the Town, the consulting team conducted an additional assessment of what parking demand would be in Needham Center if all vacant building area was occupied to its fullest and highest use. Floor area data by use was provided by the Town for the Needham Center district, which is slightly larger than the area where utilization data was collected. These uses were entered into a shared parking model using the Urban Land Institute's accepted shared parking methodology. This approach is appropriate for a mixed use downtown like Needham's where many uses share parts of the same parking supply (employee lots, customer parking, meters, etc.) The inputs are shown in Figure 16 with the resulting daily demand curve from 6AM until 12AM.

Figure 16: ULI Shared Parking Model, Inputs and Results

Land Use	Square Feet	Units
RETAIL/RESTAURANT		
Athletic Club	70,807	square feet
General Retail	322,105	square feet
Auto Sales and Service	11,592	square feet
Drive-In Bank	19,383	square feet
Quality Restaurant	10,659	square feet
Supermarket	-	square feet
Industrial	-	square feet
OFFICE		
Office	85,679	square feet
Medical/Dental Office	14,336	square feet
Government Office	20,108	square feet



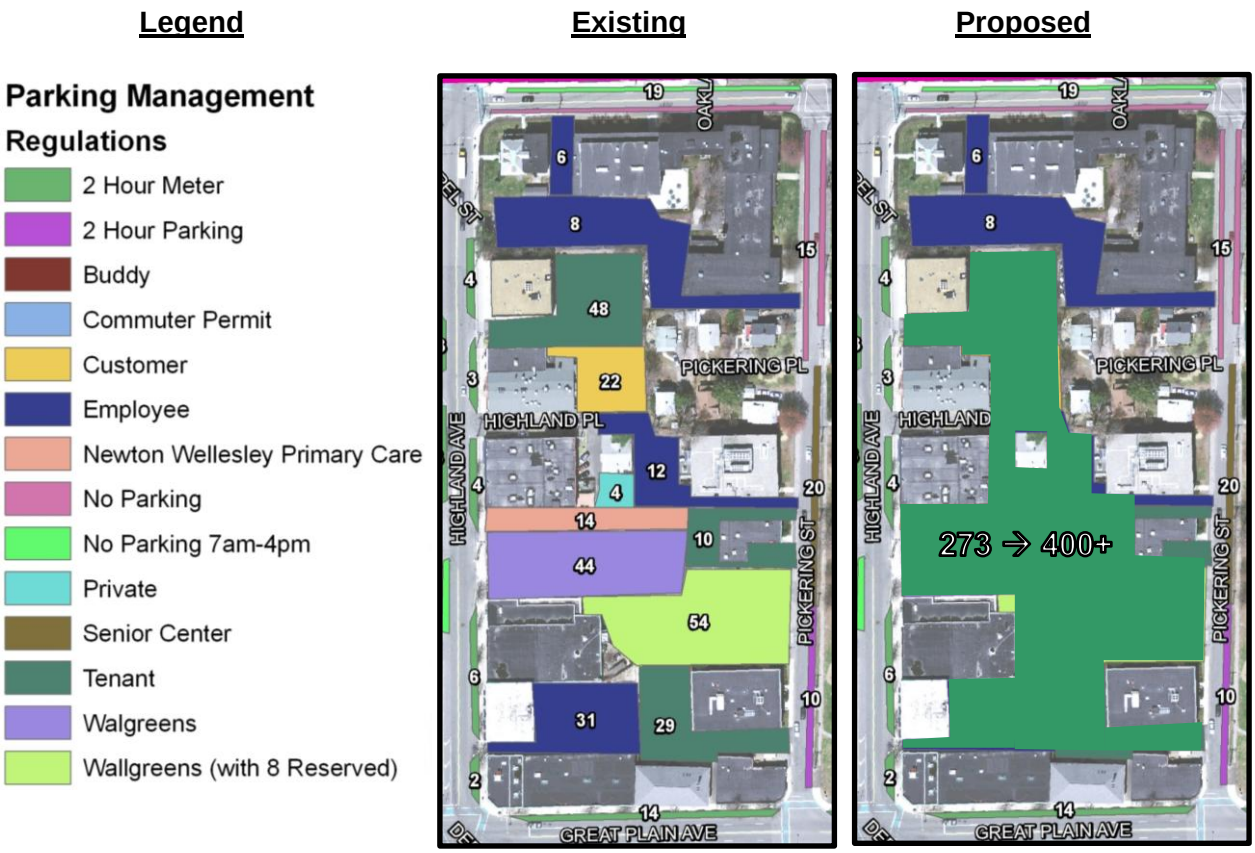
Based on the inventory conducted for the parking utilization survey, there are 1,330 spaces in Needham Center. According to the ULI model, if all of the over 575,000 square feet of leasable space in Needham was fully occupied, demand would be 1,275 spaces, or about 96-percent of the available capacity. This suggests that the existing parking supply is well-matched to the built environment of Needham Center. However, today there are only 855 spaces utilized at peak (64-percent). Given the concern about parking availability, there is a clear need to manage the existing parking resources better.

6. Pilot Parking Strategy for the "Walgreens Block"

The underlying approach to improving perceived availability problems in the Walgreens lot is to find ways to encourage sharing of this facility with other abutting lots that are underutilized. While the utilization data clearly shows there is an opportunity here, the Town and other stakeholders have recognized this for years and sought a shared arrangement to no avail. Therefore, the goal of this study was not merely to again identify the need but rather to develop strategies that would be attractive to the private property owners who control all of the parking in this block.

The Walgreen lot pilot is focused on the "Walgreens block," which is bound by Highland Avenue, May Street, Pickering Street, and Great Plain Avenue. As shown in Figure 17, there is a wide variety of surface parking in this block with varied controls and ownership. Within the core of this block, contiguous paved areas separated only by fences or paint at property lines contain 273 parking spaces – over twice the capacity of the Walgreens lot itself. Figure 17 also suggests that if these contiguous spaces were utilized as one facility (which contains over 170,000 square feet of asphalt), the possible supply could be over 400 spaces using a conservative average estimate of 325 square feet per space, which includes maneuvering and access lanes. This is due to the efficiencies of eliminating fences, redundant aisles, single-loaded parking fields, redundant curb cuts, etc.

Figure 17: Parking Configurations in the "Walgreens Block"



In order to combine parking across private parcels, landowners have a number of considerations to evaluate. These include:

- Liability concerns about public access on private property
- Public vagrancy on private property
- Loss of developable land
- Loss of marketability of dedicated parking to future tenants
- Revenue impacts
- Violations of zoning code

Few examples of applying successful shared parking arrangements to existing parking facilities have been identified that do not involve either direct acquisition by a municipality or a leasehold arrangement. The consulting team recognized that many of the landowner concerns listed above are only surmountable given sufficient return on investment to the property owner. For example, sufficient liability protection is possible but must be purchased from an insurance company; security treatments can be installed and maintained but at additional cost; any existing parking revenue that is lost must be offset; and dedicated parking assurances would have to be maintained or purchased.

Other property rights issues exist. Regarding the loss of developable land, any shared parking arrangement would have to ensure that participants could redevelop their own land at any time given an agreeable notification period. Regarding potential violations of parking minimums if on-site parking supply changes as part of cross-lot consolidation, the Town would need to provide new flexibility, which can be expected if a shared arrangement is developed.

Given these considerations, the consulting team recognized that revealing the land value of these rear-yard lots was essential in order to recognize the value of operating them more efficiently. In order to realize the existing land value of parking, a payment is necessary.

Pilot Lease Arrangement

Given that the consulting team could not know the particular financial arrangements with any landowner's tenants regarding the use of existing on-site parking, national estimates were used as a guide. In the United States, the average operations and maintenance costs for surface parking is $27 per space per month[2], or $327 per year. Therefore, the team assumed that this represents the minimum value of parking to a landowner. This was assumed to be the average fair lease payment the Town should make annually in order to operate a landowner's parking lot as part of a shared parking facility, similar to that depicted in Figure 17. The team also assumed that the Town would offer to lease parking lots with a mix of up to three leasehold categories that would be preferable to the typical landowner:

- **Assigned Spaces**. The lowest lease payment would be made for spaces that are exclusively assigned to tenants or other users as defined the landowner (approximately $200 per space per year).
- **Permitted Spaces**. A greater lease payment would be available for spaces that require a permit (approximately $325 per space per year).

[2] Based on U.S. average annual operations and maintenance costs of $327 per space per year, as reported by walker Parking Consultants.

- **Shared Spaces**. The highest lease payment would be for spaces that are completely shared with any other user of the shared parking facility (approximately $450 per space per year).

The team assumed that it is not likely that the Town would lease an entire facility in only one category, preferring instead to offer two or three categories to all potential users, as suggested in Figure 18. Under any category, the assigned, permitted or shared spaces might not necessarily be on the leased property but rather elsewhere within the shared facility. For example, assigned spaces may be closest to predominantly office use buildings; permit spaces might be within a central field of employee spaces; and shared spaces may be closest to customer destinations such as Walgreens. In return for this flexibility, the Town would restripe and maintain each landowner's land as part of the larger consolidated facility, including any necessary fence removals, re-grading, drainage, landscaping, walkways, signing, lighting, etc. The Town would assume a minimum level of maintenance, security, and liability responsibility (comparable to the Chestnut Street municipal lot) to allow other users and the general public to access the shared spaces on these parcels.

Figure 18: Sample Annual Lease Payments, Hypothetical Lot of 45 Spaces

	Percentage of Spaces	Number of Spaces	Lease Payment from Town
Scenario A: "Categories Reflective of All Users"			
Assigned ($200/space)	10%	5	$1,000
Permitted ($325/space)	60%	27	$8,775
Shared ($450/space)	30%	14	$6,300
Total	*100%*	*46*	*$16,075*
Scenario B: "Limited Participation in Sharing"			
Assigned ($200/space)	80%	36	$7,200
Permitted ($325/space)	20%	9	$2,925
Shared ($450/space)	0%	0	$0
Total	*100%*	*45*	*$10,125*
Scenario C: "Full Participation in Sharing"			
Assigned ($200/space)	0%	0	$0
Permitted ($325/space)	20%	9	$2,925
Shared ($450/space)	80%	36	$16,200
Total	*100%*	*45*	*$19,125*

Alternative for Landowners

While the team could not know what amount of money is collected today for parking fees or leases, it assumed that any parking fees are bundled within lease arrangements to tenants. Therefore, if existing tenant lease arrangements can be adjusted to accommodate the proposed arrangement, the Town's lease payment would be additional revenue for each participating property that is not collected today.

However, the real value of this undeveloped land may be much higher, given an opportunity to build new leasable building space and attract tenants. As part of the study, the consulting team

determined that the average assessed value of undeveloped land in downtown Needham is $26.55 per square foot[3]. If this land were to be used to directly generate revenue (by leasing spaces on the open market or constructing more leasable tenant space), it was assumed that landowners would seek an annual return on their investment of 10-percent for a period of 35 years (an average building or parking structure lifespan). Amortized, the surface parking area at each property is potentially worth twice as much as the lease payment being offered by the Town. This difference represents the opportunity cost of participating in this pilot program versus planning, permitting, and redeveloping the site.

Based on this assessment, most interviewed landowners saw at least three possible options:

1. For some property owners, it may be worth considering developing on their parking lot, and the Town is investigating an in-lieu of parking program that would make it possible to develop on these spaces without needing to meet minimum required parking quantities (see below).
2. For others, the hypothetical lease payment from the Town is a worthwhile interim investment.
3. And for others, maintaining current operations is most cost-effective.

Sources of Funds for Lease Payments

Today, the Town has no formal program or funds available to lease parking from private entities. However, this pilot project is attempting to make this possible as a way for the Town to resolve on-going parking complaints and avoid the cost to taxpayers of building a municipal parking structure. The goal of this pilot is to create a revenue-neutral arrangement that can be afforded by the Town without imposing new taxes or seeking outside assistance.

There are three mechanisms that were tested which the Town can use to collect revenues to offset the cost to lease parking:

- **Fees In Lieu of Required Parking** – The Town is beginning to investigate a system whereby new land developments or changes of use may pay a fee to the Town instead of building or acquiring the amount of parking that is required by the zoning code. These fees are put into a fund that the Town can use to manage parking and possibly build future supply when needed (see extended discussion in Appendix C). For this pilot, it was estimated that this fee would be graduated to reflect a discount of up to one-half of the approximate cost to build new parking (national averages have small surface lots costing about $4,000 per space and above-grade structures at around $22,000 per space.)
- **Permit Sales and Parking Leases** – The Town sells employee permits to park in municipal lots today. With a new consolidated parking facility available, the Town could sell many more permits and even sub-lease parking to long-term users. In particular, new tenants whose developers paid a fee-in-lieu of parking would likely seek to lease spaces, possibly in the consolidated facility. While these fees alone would not recover all of the Town's lease payments, they would help recover some cost.
- **On-Street Revenues** – The Town collects a limited amount of revenue each year from the parking meters that mostly surround the Town Hall. The parking utilization study revealed that these spaces are almost fully occupied in the late morning and again during the evenings when restaurant patrons are seeking a place to park. This indicates that

[3] Average of assessed land value from the Town of Needham Assessor's Office for 20 properties in our study area.

parking is too cheap to encourage turnover (currently only $0.25/hour). Therefore, the Town could implement higher on-street rates in these spaces. However, instead of simply penalizing patrons with higher rates, the Town could explore the effect of also lengthening time limits significantly so that visitors can stay longer for appointments or dining (research indicates that someone seeking to park in front of their destination is willing to pay at least four times the current rate to get a convenient space for the entire duration of a visit.)

Under the pilot program, the Town would use a combination of these potential revenue sources to offset their payments to landowners. In order to make the revenues equal costs, the Town would also be able to take advantage of the economy of scale. This is achieved through two simple strategies:

- **The Consolidated Facility** – as described above, by combining several separated parking lots, the Town can increase the off-street parking supply in this block from 273 spaces to over 400 spaces. This is a significant gain in supply that only the Town can take advantage of through these consolidated parcels, enabling many more spaces, permit sales, and sub-leases.
- **Natural Shared Parking Benefits** – One of the greatest synergies that the Town can take advantage of by working with as many stakeholders as possible is the natural benefit of shared parking. While required parking minimums attempt to accommodate the maximum amount of parking that an individual building may need, no two buildings are alike. Typically, the hours of peak demand vary widely from building to building, tenant to tenant. When overlapping the actual parking demand of many users in one parking facility, the actual supply to meet the maximum demand at any single point is much less than the sum of the peak demand for each user (this is demonstrated in Needham, where the peak occupancy of the current 273 spaces is only 218 spaces, or 80%). This efficiency can only be gained by sharing parking.

The consulting team developed a demonstration matrix showing how the Town could afford to make an annual lease payment to property owners in downtown Needham in Figure 19. Each of the above factors is summarized in the hypothetical revenues versus costs table.

Figure 19: Hypothetical Costs and Revenues to the Town

	Number of Spaces	Annual Dollars (Rounded)	Assumptions
Total Town Expenses:			
Lease Payments	273	$ 96,000	Average of $350/space
Consolidated Lot Construction Debt	400	$ 235,000	$3,000/space minus land cost for 35 years at 6%
New Operating & Maintenance	273	$ 45,000	$327/space with 50% discount (existing Public Works function)
Subtotal		$ 376,000	
Total Town Revenues:			
Sub-Leases	200	$ 60,000	$25/month/space
Employee Permits	200	$ 24,000	New $10/month permit
Enforcement Revenue	400	$ 61,000	$10/ticket for 5% of new spaces/day
In-Lieu Fees	20	$ 150,000	Average of 20 new spaces per year at $7,500/space average fee
New On-Street Meter Fees	89	$ 80,000	Increase 1/2 of meters to $0.50/hr. at 60% utilization
Subtotal		$ 375,000	
New Town Revenues:		$ (1,000)	

Reactions from Landowners

All landowners in the stakeholder group (direct and indirect abutters of the Walgreens lot) were willing to consider the pilot program, but many had significant reservations that were based on their personal experiences with the Town. In general, all were interested in having more parking for their tenants and/or customers. They were also interested in having a nicer parking facility in the downtown. As might be expected, landowners with constrained parking were more interested in participating than landowners who did not get complaints from their tenants.

Besides individual concerns about working with the Town, landowners' reservations about participating tended to fall into three categories:

- Some landowners were content with their existing parking operations and saw no real incentive to participate in sharing. They did not consider the proposed lease payment to be high enough to risk losing their existing stable parking arrangements. This may warrant re-evaluating the lease payment.
- The cost and complexity of restructuring current leases was another notable source of hesitation. Especially where lease arrangements dealt specifically with designated spaces, landowners saw too much trouble restructuring these deals. However, the Town would be wise to have its offer available when landowners must return to negotiations in the future with lease renewals or new tenants.
- Several expressed concern about the Town's ability to manage the proposed program and the requirements of maintaining the shared parking lot. While past experience was cited, it is clear that this pilot arrangement would have something that past Town arrangements have not had – a dedicated revenue stream to pay for the program.

7. Key Recommendations

Based on the consultant's parking study, the following key recommendations are presented to the Town for future consideration:

Management of Shared Parking

- The Town should review and refine the shared parking pilot program and offer it to landowners in commercial districts where a shared parking facility is feasible.
- The Town should simultaneously seek nighttime off-street parking arrangements with underutilized facilities – such as the Walgreens lot – to free-up more parking for restaurant patrons, helping to support these vital businesses.
- The Town should offer new on-street employee permits and designate under-utilized block faces at the edges of commercial centers as employee parking from 8AM to 5PM.
- The permit pricing structure should be revisited as the existing pricing tiers do not incentivize the use of buddy spaces. Prices should also be revisited since many commuters may be causing the high demand to avoid the daily MBTA rate. Finally, permits should be monthly, with the ability to buy more than one month at a time. The current annual payment requirement encourages people to buy a permit even if they don't need it all of the time, and it doesn't promote shifting to another mode since the privilege to park is an up-front sunk cost that is wasted if not utilized.
  - A recommended initial pricing strategy might include:3 tiers: Off-street standard ($12/mo); Off-street "buddy" ($10/mo); On-street ($8/mo)
- Enable sharing in zoning (discussed below).

Incentives to Private Landowners

- The Town should offer the pilot to provide new lease revenues to landowners while getting new municipal parking in town.
- As part of the pilot, the Town should assume the liability of operating public parking on private land, removing one of the greatest hurdles to public sharing. The arrangements should also include minimum maintenance and security guarantees.
- An in-lieu fee program should go forward to allow some properties to redevelop and new infill uses to occur. Existing parking minimums are preventing smaller businesses from opening in centers like Needham's.

Better Management of On-Street Parking

- Existing meter pricing and management should be altered to be more responsive to demand. Where demand is high, the current price is too low (near Town Hall and in the Walgreens lot and on portions of Great Plain Ave.). The Town should explore increasing meter rates to $0.50/hour or more, but this MUST be accompanied by increased time-limits. Two-hours is not sufficient for many visits. Turnover is best driven by pricing, not the threat of getting a parking ticket – especially for downtowns seeking to attract customers. Time-limits should ultimately be eliminated, since it would be cheaper to park long-term in existing municipal lots or the MBTA lot – freeing up valuable on-street spaces for more customers.
- Extend evening meter hours to 8PM or later. This will clear employees from valuable customer spaces. Coupled with 4-hour or longer time limits, dining in Needham will not

have the hassle of finding parking. This should be coupled with a cessation of meter hours between 8AM and 10AM when parking demand is low and most seek only to stop quickly on their way to work.

- The Town should work to improve signing to its municipal lots, most of which are unknown to the casual visitor. This is especially important during times of peak demand.

Zoning Changes

- The Town should formalize an in-lieu of parking payment program to subsidize the recently approved downtown transportation fund. The consulting team provided on-going advice to the Town and its Planning Board with regard to how these arrangements are structured (see Appendix C). The consultant recommended a low base fee with a per space increment, which means a low fee for landowners seeking to waive a few spaces and a high fee for those who might seek to waive a lot of parking. Several approaches were explored with varying increments that achieve the goal of enabling small businesses to open when parking is difficult to construct but preventing large businesses from flooding the town with cars that have nowhere to park.
- Shared parking should be fully accommodated in Needham's zoning code. Language can be based directly on the use of the ULI Shared Parking Model, which is an accepted and intelligent standard for estimating the varying use peaks of shared uses.
- Remote off-site parking should be allowed wherever parking capacity can be demonstrated without requiring landowners to demonstrate specific zoning allocations of parking. If a leasehold or purchase can be demonstrated for required spaces – less those that may be waived with an in-lieu payment – there should be no secondary "reserve" of parking on the subject site that is required in zoning. Frequently, these allotments are never used, resulting in wasted surface parking.

Appendix A:
Scope of Work

The Scope of Services to be provided by Nelson/Nygaard includes the following list of tasks, meetings and deliverables. Work will be focused on developing a "pilot" for alternative parking policies and programs in Needham by focusing on operations and policies governing the Walgreens parking lot.

1. Kick-off meeting with Town and DHCD staff
    a. Identification of primary issues, including:
        i. Sharing the Walgreen's parking lot with additional users
        ii. Incentives for other lots to combine/share with the Walgreen's lot
        iii. Appropriate lot and facility design treatments
        iv. Management techniques for a shared facility
    b. Definition of study area, to be generally within a reasonable walk of the Walgreen's lot and bound approximately by (see attached map):
        i. May Street to the north
        ii. Garden Street to the west
        iii. The Chestnut Street lot to the south; and
        iv. Warren Street to the east
    c. Identification of Walgreen's stakeholders, including:
        i. All of the property owners within the Walgreen's block (bounded by Highland, May, Great Plain Ave, and Pickering)
        ii. Town Staff (Town Planner, Town Engineer, Economic Development Director, Town Manager, Assistant Town Manager
        iii. Other members of the "Walgreen's committee" (Jack Cogswell, Moe Handel and Bill McQuillan)
    d. Discuss schedule and coordination needs (Tentative schedule is below)
    e. Outline final scope

2. Development of Parking Profile
    a. Preparation of data collection & observation maps for study area
    b. Review of background documents
        i. (Parking Fund, Proposed zoning, 2008 downtown study reports, 2003 intern's parking study, Census journey-to-work data, MAPC regional travel survey, etc.)
    c. Review of parking regulations
        i. (Zoning requirements, Department of Environmental Protection regulations, Town permit programs, on-street regulations, commuter parking, etc.)
    d. Written profile of parking programs at and near the Walgreens lot (a, b, and c above)

3. Parking Utilization Study
    a. Preparation of existing space inventory for study area

   b. Full day, on- and off-street parking occupancy counts
      i. Minimum every 2 hrs.
      ii. Weekday: Span of 12 hours (i.e. 8 am – 8 pm) on a high demand day (typically Thursday)
      iii. Weekend: Span of 4 hours (i.e. 11 am – 3 pm) on a Saturday
   c. Graphical summary of parking utilization
   d. Summary presentation & discussion with Town

4. Strategy Development
   a. Needs & issues workshop with Walgreen's stakeholders (identified in 1.c.)
   b. Stakeholder phone interviews (4-6)
   c. Evaluate preliminary strategies
      i. Management of shared parking
      ii. Incentives to private landowners
      iii. Addressing private liability concerns
      iv. Evaluating land value versus marketability of dedicated parking
      v. Pricing structure
      vi. Parking fund contributions
      vii. Zoning changes
   d. Written summary of strategy development (a, b and c above)
   e. Coordination & brainstorming session with Town staff

5. Final Strategy Selection
   a. Strategies workshop with stakeholders
   b. Documentation of final "pilot" program

Appendix B:
Parking Data Collection Map

Appendix C:
Supplemental In-Lieu of Parking Assessment

Separate from this contract, the consultant conducted meetings with the Town to weigh options for a new in-lieu of parking fee. The Town established a new transportation fund in the spring of 2009 which was intended to eventually pool funds to implement parts of the Downtown Plan. The Planning Board was considering the use of an in-lieu fee and sought guidance from the consultant. The consultant's recommendations are included here.

In-lieu fees are an excellent interim strategy for communities to rationally address parking requirements in mixed-use downtowns where great parking efficiencies are achievable. While many communities in the United States have eliminated parking requirements all together and implemented maximums or caps instead, this is often politically infeasible. In-lieu fees are a good alternative that gives a rational nexus to waiving parking requirements for one development versus another. The fees which are paid in lieu of providing on- or off-site parking are used for improvements that promote the kind of activity in downtowns that requires less parking than comparable development in remote stand-alone locations.

Many fees in the United States are set only to satisfy political needs at the time. Most are flat one-time payments based on a per-space fee that is tied to the average cost of building structured parking. This approach only works well where on-site constraints prohibit parking construction, as most developers would prefer to have their own parking if it costs just as much to build it as the fee. These higher fees are found mostly in dense urban downtowns where one or two developers had to find an alternative to building parking, and the city used the fee to build a shared facility nearby.

Other communities, including some in Massachusetts, have a low one-time in-lieu fee tied to a special permit, so the fee serves more as an administrative cost payment than a true incentive. Some communities, such as Montgomery County in Maryland, establish a recurring annual fee or ad valorem tax that goes into a fund for the future construction of shared parking. This approach produces a regular stream of revenue to pay for maintenance and financing, but if it isn't coupled with spending flexibility, places like Silver Springs in Montgomery County become over-parked with many empty garages.

As part of assessing this option for the Needham Planning Board, the consultant discussed possible arrangements for contributing to the newly established transportation fund while maintaining a rational nexus for the fee. As opposed to merely funding municipal shared parking, a more logical connection to reducing parking requirements is increasing the measures that reduce parking demand. Therefore, any reduced parking supply should be accompanied by measures that encourage carpooling, walking, biking, and transit. Many communities have required developments to install amenities or enact programs that increase travel by these modes in return for less on-site parking.

These communities have also sought to estimate the value of these community benefits to make a fair linkage to the reduced development cost of not building parking. Unfortunately, parking cost varies a lot based on the size of the development and the type of parking. Surface parking may cost under $5,000 per space to build; above grade garage spaces cost over $20,000 each; and underground garage spaces cost from $40,000 to $100,000 and more, depending on the construction method. Typically, the highest per space costs are for mid-sized garages where development is forced to go below-grade but the efficiency of scale is not there.

As the Town evaluates new and infill development in Needham's commercial centers, no two proposals will be alike. Many smaller businesses simply seek a change of use that triggers more parking requirements, often prohibiting their redevelopment. Some existing landowners might want to expand onto existing buildings by building on surface parking. Others may seek new construction and face prohibitive below-grade construction costs.

Given the unclear future of in-lieu applicants, some communities seek to value parking waivers in terms of a progressive scale. If the cost to provide parking for a small use that seeks to redevelop existing space could be low, the community benefit cost should be lower. Similar if the cost to provide lots of structured parking is higher, the community benefit cost to avoid this should be higher. Based on this approach, a sample approach would include a base fee for each parking space waived from the requirement with an increment for each additional space (see inset figure).

A	B	C	D	E
Number of Spaces	Per Space Fee Basis	Increment	Total Fee	Average Fee Per Space
	(previous B plus C)		(sum of all B values)	(= D/A)
	$ 2,000	$ 750		
1	$ 2,750	$ 750	$ 2,750	$ 2,750
2	$ 3,500	$ 750	$ 6,250	$ 3,125
3	$ 4,250	$ 750	$ 10,500	$ 3,500
4	$ 5,000	$ 750	$ 15,500	$ 3,875
5	$ 5,750	$ 750	$ 21,250	$ 4,250
6	$ 6,500	$ 750	$ 27,750	$ 4,625
7	$ 7,250	$ 750	$ 35,000	$ 5,000
8	$ 8,000	$ 750	$ 43,000	$ 5,375
9	$ 8,750	$ 750	$ 51,750	$ 5,750
10	$ 9,500	$ 750	$ 61,250	$ 6,125

If the rates are adjusted according to a community's goals, the overall effect can be very helpful to developers as well as economic development in a community. The figure below shows how this might translate for a community seeking smaller in-fill development that cannot afford to build new parking while seeking to prevent large developments from wanting to waive all of their parking requirements.

Sample Community Benefit Cost Escalation Versus Community Goals